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Research Article

Yield and impact analysis of training and FLDs regarding scientific cultivation of brinjal

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SUMMARY : Front line demonstration (FLD) is one of the most powerful tools for transfer of technology. In order to increase the productivity of brinjal (*Solanum melongena* L.) by adopting improved technologies, several demonstrations with scientific package of practices were conducted by Krishi Vigyan Kendra, Navsari. A study on impact of farmer's knowledge, adoption and knowledge regarding scientific innovations was conducted. The impact assessment was based on the comparison of before contact and after contact of KVK with reference to increase in knowledge level of farmer's regarding scientific packages of practices, extent of adoption of INM technology. It was found that the overall knowledge of INM demonstrations indicated that low, medium and high level of knowledge before contact with the KVK was 49 per cent, 38 per cent and 13 per cent, respectively. It was altered up to 08 per cent, 50 per cent and 42 per cent, respectively after contact with the KVK. In case of knowledge regarding selected scientific innovations for demonstrations, high knowledge regarding selected scientific innovations was found. The technology index indicates the feasibility of evolved technology at the farmer's field. Lower the value of technology index, more is the feasibility of technology demonstrated. As such reduction of technology index from 29.05 per cent (2009) to 32.82 per cent (2011) exhibited the feasibility of technology demonstrated.

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KEY WORDS :
Technology index, FLD, Demonstration, Knowledge, Adoption

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BACKGROUND AND OBJECTIVES

A vegetable plays a very criceal role in human diet. The main vegetable crops grown are onion, chilli brinjal, methi, palak, tomato, cabbage etc. Among these vegetables brinjal is the most popular crop. Brinjal (*Solanum melongena* L.) popularly known as egg plant belongs to family Solanaceae and india is its center of origin and diversity (Vavilov, 1931 and Bahaduri, 1951). Nutritionally, brinjal is low energy (30kcal/100g), protein 1.2 % (100 mg) and vitamin C (5mg/100g), but it is very good source of dietry source of fibre, potassium, calcium, magnesium, copper and vitamin B1 (thiamin) Anonmous (2007). In India area under brinjal is 7.13 lakh ha with the production of 129.73 lakh MT. In Gujarat area comprises73065 ha area under production with the productivity of 17.39 kg/ha. The productivity of Navsari district is 21.00 t/ha. There is large scope for increase the productivity. So KVK conducted large scale demonstrations on INM in brinjal were taken at farmers field.

Objectives:

- To study the level of knowledge of brinjal grower regarding brinjal cultivation.
- To study the extent of adoption of improve practices of brinjal cultivation.
- To find out the yield gap analysis of brinjal production technology.

RESOURCES AND METHODS

The present study was conducted in Navsari district of south Gujarat state. 10 villages of Navsari district were selected, sample size was 200 farmer's. The data were collected through personnel interview. The interview schedule was prepared by keeping the objectives of the study in mind. The necessary care was taken to collect the un-biased and correct data. The data were collected, tabulated and analyzed to find out the findings and draw conclusion. The statistical tool like percentage was employed to analyze the data. The constraints as perceived by respondents were scored on the basis of magnitude of the problem as per Meena and Sisodiya (2004). The respondents were recorded and converted in to mean per cent score and constraints were ranked accordingly as per Warde *et al*. (1991).The extension gap, technology gap and the technology index were work out with the help of formulas given by Samui *et al*. (2000) as mentioned below:

Extension gap = Demonstration yield- farmers yield(control)

Technology gap = Potential yield- demonstration yield

$$\text{Technology index} = \frac{\text{Technology gap}}{\text{Potential yield}} \text{x100}$$

OBSERVATIONS AND ANALYSIS

The result of overall knowledge of INM indicated that

Table 1: Overall knowledge of scientific package of practices of brinjal (n=200)

Category	Before contact with KVK	After contact with KVK
Low level of knowledge	49	08
Medium level of knowledge	38	50
High level of knowledge	13	42

Table 2: Knowledge regarding selected scientific innovations for brinjal cultivation (n=200)

Sr. No	Selected scientific innovations	Low	Medium	High
1.	Integrated nutrient management	9	36	55
2.	Pest and disease control	22	49	29
3.	IPM	21	45	34
4.	Plant growth regulator	5	12	83
5.	Recommended spacing	6	45	69
6.	Value addition	5	14	81

Table 3: Overall adoption of scientific package of practices of brinjal (Percentage) (n=200)

Category	Before contact with KVK(%)	After contact with KVK
Low level of adoption	26	5
Medium level of adoption	57	19
High level of adoption	17	76

Table 4: Adoption of critical brinjal production technology (%) (n=200)

Sr. No.	Name of technology	Adoption (%)
1.	Integrated nutrient management	89
2.	Pest and disease control	82
3.	IPM	64
4.	Plant growth regulator	79
5.	Recommended spacing	54
6.	Value addition	72

Table 5: Exploitable productivity, extension gap, technology gap and technology index of brinjal as grown under FLD's and existing package of practices

Year	Area (ha)	No. of demon.	Yield q/ha		% increase in yield	CBR		Extension gap q/ha	Technology gap q/ha	Technology index
			Demo.	Control		Demo.	Control			
2009	8	38	28.38	18.93	49.9	3.27	2.03	9.45	11.62	29.05
2010	8.9	44	29.92	19.41	54.14	2.88	1.73	10.51	10.08	25.20
2011	10	42	26.87	18.08	48.61	3.32	2.33	8.79	13.13	32.82
			28.390	18.807	50.883	3.157	2.030	9.583	11.610	29.023

the low, medium and high level of knowledge before contact with KVK was 49 per cent, 38 per cent and 13 per cent, respectively and it was increased up to 08 per cent, 50 per cent and 42 per cent after contact with KVK (Table 1). Javat *et al*. (2011) Das *et al.* (2010) reported the same results.

In case of selected knowledge regarding selected scientific innovations for INM, high knowledge regarding selected scientific innovations were found, except IPM (Table 2).

Data presented in Table 3 indicated that majority of the farmer had medium level of knowledge 57 per cent before contact with KVK. After contact with KVK, 76 per cent of the farmers had high level of knowledge regarding scientific cultivation of INM. Godawat (2011) supported the facts.

Attempts were also made to study and categories of the major constraints in to suitable topics *viz.,* new high yielding variety, seed rate, time of sowing, integrated nutrient management, integrated pest management, plant growth regulator and value addition (Table 4).

Under adoption of brinjal production technology, 89.00 per cent farmer's adopted high yielding varieties and more than 80.00 per cent farmers adopted INM and recommended seed rate. In case of plant growth regulator and value adoption 79.00 per cent and 72.00 per cent adoption was observed from the above discussion. Similar work was done by Badhe and Saiyed (2011) and Walke *et al*. (2009 a, b and c).

Yield gap analysis of brinjal cultivation:

The results obtained during three year are presented in Table 5. The results indicated that the highest yield in FLD plot and farmers plots was 28.39 q/ha and 18.80q per hectare, respectively. The cost benefit ratio was higher in FLD plot (3.157) than control (farmers practices) (2.03). The results clearly showed that due to knowledge and adoption of scientific practices, the yield of brinjal could be increase by 49.9 per cent, 54.14 per cent and 48.61 per cent over the yield obtained under farmers practices. The above findings are in line with the finding of Singh (2002); Dubey *et al*. (2010) and Meena (2010). Yield of the front line demonstration trials and potential yield of the crop was compared to estimate the yield gaps which were further categorized into technology and extension gaps (Hiremath and Nagaraju, 2009). Average extension gap was 9.583 q ha^{-1}, which emphasized the need to educate the farmers through various extension means like FLD. The technology gap ranged between 10.08 q/ha to 13.13 q/ha. The average technology gap from three year of FLD programme was 11.61 qt/ha. The average technology gap observed may be attributed dissimilarity in soil fertility status, agricultural practices and local climate condition. The technology index indicated the feasibility of evolved technology at the farmer field. Lower the value of technology index, more is the feasibility of technology demonstrated, (Sagar and Chandra, 2004). As such reduction of technology index from 29.05 per cent (2009) to 32.82 per cent (2011) exhibited the feasibility of technology demonstrated. Similar yield enhancement in different crops in front line demonstration has amply been documented by Haque (2000), Tiwari *et al.*(2003), Mishra *et al.* (2009) and Kumar*et al.* (2010). The FLD obtained a significant positive results and also provided researcher an opportunity to demonstrate the productivity potential and profitability of INM under real farm situation which they have advocating for a long time. Similar finding were reported by Kirar *et al*. (2005) and Chauhan and Pandya (2012) in gram.

Conclusion:

For the above discussion, it can be concluded that knowledge level and adoption level of tribal farmers were amplified after imparting training and conducting FLD by KVK scientists. The FLD conducted on INM in brinjal at farmer's field in Navsari district revealed that the farmer's could improve the cultivation practices using INM. In demonstration the integrated nutrient management of brinjal performed better than control plot. It improved the productivity by 50.88 per cent. The productivity under FLD over farmers practices created awareness and motivated the other farmers to adopt INM and other technology of brinjal in the district.

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